

WAEC Mathematics 2025 Past Questions

Problems from the Cheetah WAEC 2025 question bank.

Question 1 (MCQ)

Find $(101_2)^2$, expressing the answer in base 2.

- A. 11101_2
 - B. 10101_2
 - C. 10010_2
 - D. 11001_2
-

Question 2 (MCQ)

If three children share ₦10.50 among themselves in the ratio 6 : 7 : 8, how much is the largest share?

- A. ₦3.50
 - B. ₦4.00
 - C. ₦4.50
 - D. ₦3.00
-

Question 3 (MCQ)

Express 0.000834 in standard form.

- A. 8.34×10^{-4}
 - B. 8.34×10^{-3}
 - C. 8.34×10^4
 - D. 8.34×10^3
-

Question 4 (MCQ)

Simplify $0.027^{-\frac{1}{3}}$.

- A. $\frac{3}{10}$
 - B. $3\frac{1}{3}$
 - C. $\frac{1}{3}$
 - D. 3
-

Question 5 (MCQ)

Given that $\log_2 a = \log_8 4$, find a .

- A. $2^{\frac{1}{2}}$
 - B. $2^{\frac{2}{3}}$
 - C. $4^{\frac{2}{3}}$
 - D. $4^{\frac{1}{2}}$
-

Question 6 (MCQ)

By selling some crates of soft drinks for ₦600.00, a dealer makes a profit of 50%. How much did the dealer pay for the drinks?

- A. ₦400.00
 - B. ₦1200.00
 - C. ₦900.00
 - D. ₦450.00
-

Question 7 (MCQ)

Find the n th term U_n of the arithmetic progression 11, 4, $-3, \dots$

- A. $U_n = 19 - 7n$
 - B. $U_n = 19 + 7n$
 - C. $U_n = 18 - 7n$
 - D. $U_n = 18 + 7n$
-

Question 8 (MCQ)

If $R = \{2, 4, 6, 7\}$ and $S = \{1, 2, 4, 8\}$, find $R \cup S$.

- A. $\{1, 2, 4, 6, 7, 8\}$
 - B. $\{1, 2, 4, 7, 8\}$
 - C. $\{1, 4, 7, 8\}$
 - D. $\{2, 6, 7\}$
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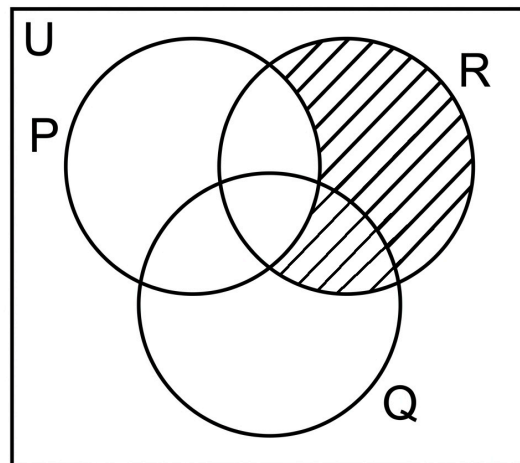
Question 9 (MCQ)

If $\frac{16}{9}, x, 1, y$ are in geometric progression, find xy .

- A. $\frac{16}{9}$
 - B. $\frac{3}{4}$
 - C. 1
 - D. $\frac{4}{3}$
-

Question 10 (MCQ)

In the diagram below, the shaded portion is



In the Venn diagram, the shaded portion is represented by which set expression?

- A. $(P \cup Q)^1 \cap R$
- B. $P^1 \cap Q \cap R$
- C. $P^1 \cap R$
- D. $Q^1 \cap R$

Question 11 (MCQ)

Find the values of x for which $\frac{6x-1}{x^2+4x-5}$ is undefined.

- A. +5 or -1
- B. -5 or +1
- C. -5 or -1
- D. +4 or +1

Question 12 (MCQ)

Solve the inequality $\frac{1}{3}(2x - 1) < 5$.

- A. $x < -5$
- B. $x < 8$
- C. $x < -6$
- D. $x < 7$

Question 13 (MCQ)

Find the smaller value of x for which $x^2 - 3x + 2 = 0$.

- A. 4
- B. 2
- C. 3
- D. 1

Question 14 (MCQ)

Factorize $x(a - c) + y(c - a)$.

- A. $(a - c)(y - x)$
 - B. $(a + c)(x + y)$
 - C. $(a + c)(x - y)$
 - D. $(a - c)(x - y)$
-

Question 15 (MCQ)

If $y \propto \frac{1}{x^2}$ and $x = 3$ when $y = 4$, find y when $x = 2$.

- A. 3
 - B. 9
 - C. 1
 - D. 18
-

Question 16 (MCQ)

Solve $3x^2 + 25x - 18 = 0$.

- A. $-3, 2$
 - B. $-9, \frac{2}{3}$
 - C. $-2, 9$
 - D. $-2, 3$
-

Question 17 (MCQ)

Solve $(x + 2)(x - 7) = 0$.

- A. -1 or 8
 - B. -4 or 5
 - C. -3 or 6
 - D. -2 or 7
-

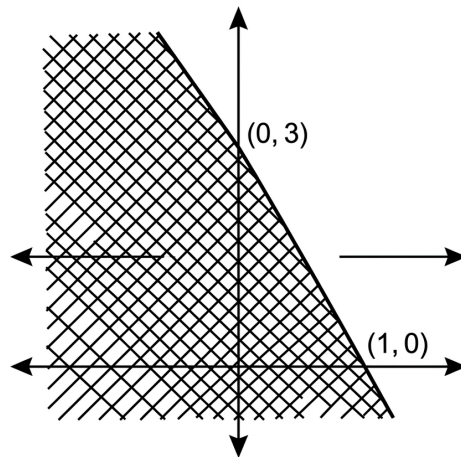
Question 18 (MCQ)

Solve $x + y = \frac{3}{2}$ and $x - y = \frac{5}{2}$. Use your result to find $2y + x$.

- A. -2
 - B. $\frac{1}{2}$
 - C. 1
 - D. -1
-

Question 19 (MCQ)

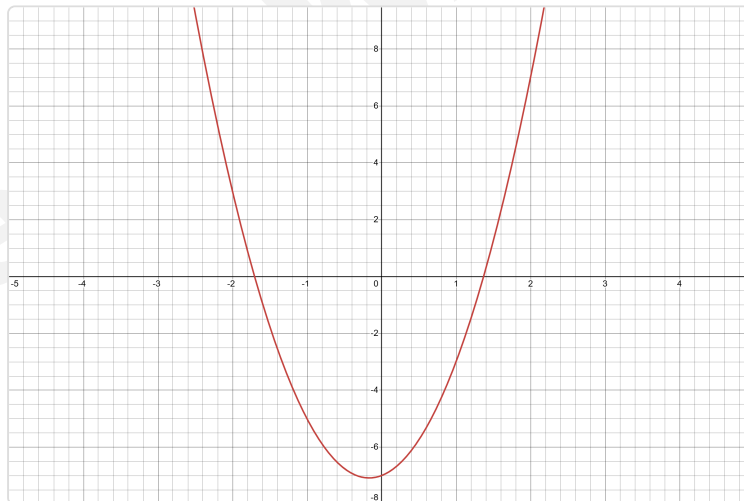
Which of the following could be the inequality illustrated in the sketch graph below?



Which inequality is illustrated by the sketch graph? The boundary line passes through $(0, 3)$ and $(1, 0)$, and the region below the line is shaded.

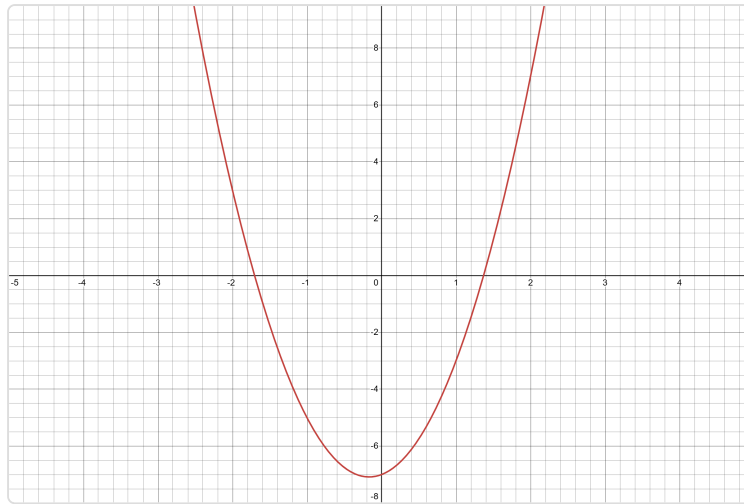
- A. $y \leq -3x + 3$
- B. $y \leq 3x + 2$
- C. $y \geq -2x + 3$
- D. $y \leq x + 3$

Question 20 (MCQ)



For the graph of $y = 3x^2 + x - 7$, what is the minimum value of y from the given options?

- A. -7
- B. -10
- C. -4
- D. -1

Question 21 (MCQ)

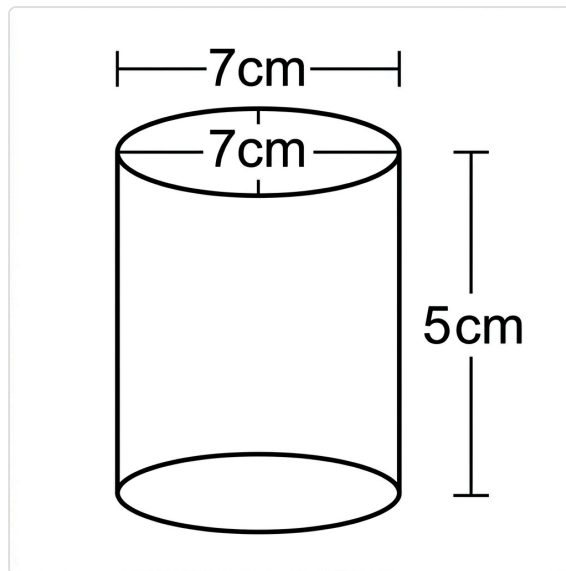
Using the graph of $y = 3x^2 + x - 7$, find the roots of the equation.

- A. 1.4 and -1.7
- B. 2.0 and -1.9
- C. 1.0 and -1.2
- D. 1.1 and -1.3

Question 22 (MCQ)

The diagonals AC and BD of a rhombus $ABCD$ are **16 cm** and **12 cm**. Calculate the area.

- A. 96 cm^2
- B. 36 cm^2
- C. 48 cm^2
- D. 24 cm^2

Question 23 (MCQ)

A cylindrical container, closed at both ends, has radius **7 cm** and height **5 cm**. Find its total surface area.

- A. 35 cm^2
- B. 528 cm^2
- C. 154 cm^2
- D. 220 cm^2

Question 24 (MCQ)

Find the total surface area of a solid circular cone with base radius **3 cm** and slant height **4 cm**. Take $\pi = \frac{22}{7}$.

- A. 66 cm^2
- B. $37\frac{5}{7} \text{ cm}^2$
- C. $75\frac{3}{7} \text{ cm}^2$
- D. $78\frac{6}{7} \text{ cm}^2$

Question 25 (MCQ)

A water tank of height $\frac{1}{2} \text{ m}$ has a square base of side $1\frac{1}{2} \text{ m}$. It is filled from a tanker holding **1500** litres. How many litres are left?

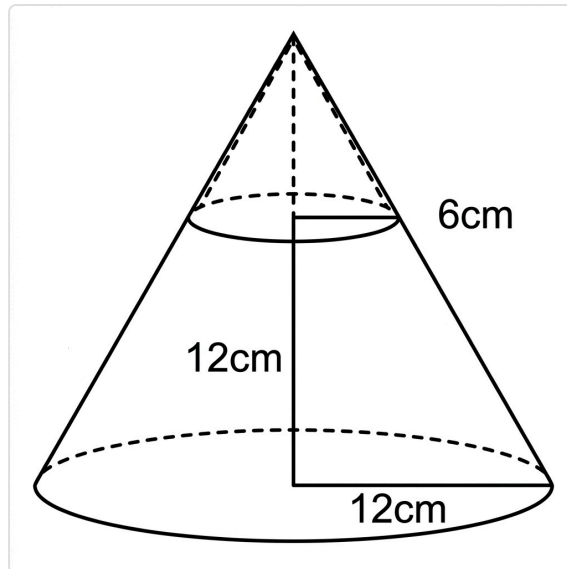
- A. 375 litres
- B. 3750 litres
- C. 37.5 litres
- D. 37500 litres

Question 26 (MCQ)

A sphere has volume $k \text{ cm}^3$ and surface area $k \text{ cm}^2$. Calculate the diameter.

- A. 3 cm
- B. 9 cm
- C. More information needed
- D. 6 cm

Question 27 (MCQ)



A cone has a frustum with radii **12 cm** and **6 cm**, and frustum slant height **12 cm**. Calculate the full cone slant height.

- A. 24 cm
- B. 15 cm
- C. 8 cm
- D. 12 cm

Question 28 (MCQ)

The positions of two countries *P* and *Q* are $(15^\circ N, 12^\circ E)$ and $(65^\circ N, 12^\circ E)$. What is the difference in latitude?

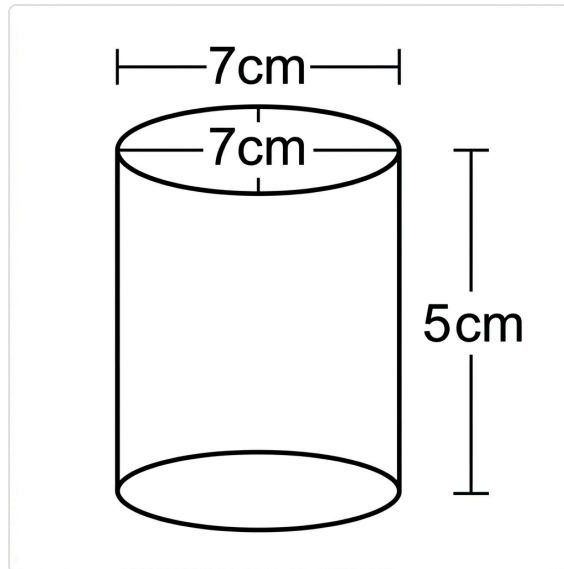
- A. 50°
- B. 104°
- C. 80°
- D. 100°

Question 29 (MCQ)

A 120° sector of a circle of radius **21 cm** is bent to form a cone. What is the base radius of the cone?

- A. $3\frac{1}{2}$ cm
- B. $10\frac{1}{2}$ cm
- C. 14 cm
- D. 7 cm

Question 30 (MCQ)



A cylindrical container, closed at both ends, has radius **7 cm** and height **5 cm**. What is the volume?

- A. 770 cm^3
- B. 35 cm^3
- C. 220 cm^3
- D. 154 cm^3

Question 31 (MCQ)

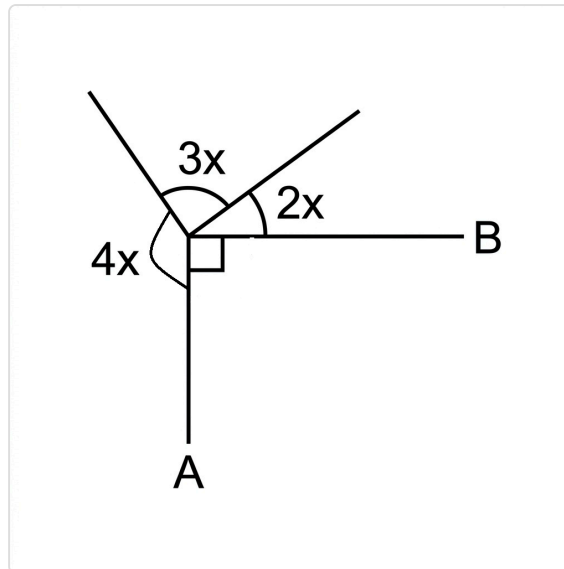
If $\log_{10} x = \bar{2}.3675$ and $\log_{10} y = \bar{2}.9738$, find $x + y$, correct to three significant figures.

- A. 0.118
- B. 0.903
- C. 0.117
- D. 0.944

Question 32 (MCQ)

A sector has angle 108° and radius $3\frac{1}{2} \text{ cm}$. Find its perimeter.

- A. $6\frac{3}{5} \text{ cm}$
- B. $7\frac{2}{10} \text{ cm}$
- C. $6\frac{4}{5} \text{ cm}$
- D. $13\frac{3}{5} \text{ cm}$

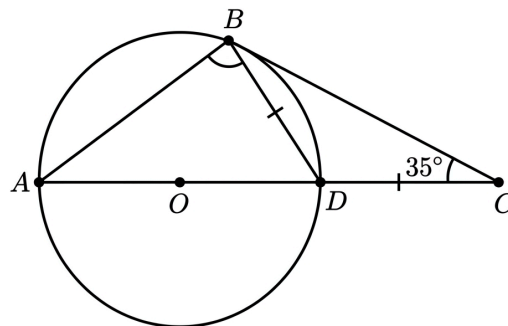
Question 33 (MCQ)

In the diagram, $AO \perp OB$. Find x .

- A. 15°
- B. 22.5°
- C. 7.5°
- D. 30°

Question 34 (MCQ)

In the diagram below O is the center of the circle and $|BD| = |DC|$. If $\angle DCB = 35^\circ$, find $\angle BAO$.



In the diagram, O is the centre of the circle and $|BD| = |DC|$. If $\angle DCB = 35^\circ$, find $\angle BAO$.

- A. 25°
- B. 30°
- C. 20°
- D. 35°

Question 35 (MCQ)

Which of the following angles is an exterior angle of a regular polygon?

- A. 95°
- B. 78°
- C. 72°
- D. 85°

Question 36 (MCQ)

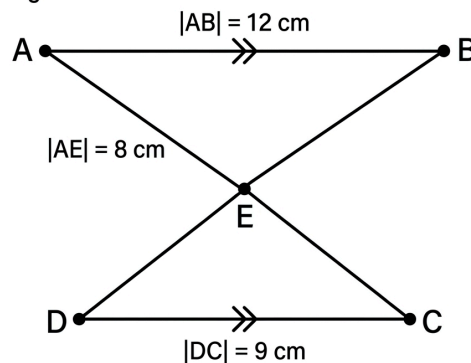
The locus of a point equidistant from two fixed points is the:

- A. angle bisector of the straight lines joining them
- B. parallel line to the straight line joining them
- C. perpendicular to the straight line joining them
- D. perpendicular bisector of the straight line joining them

Question 37 (MCQ)

Question: Solving for Unknown Lengths

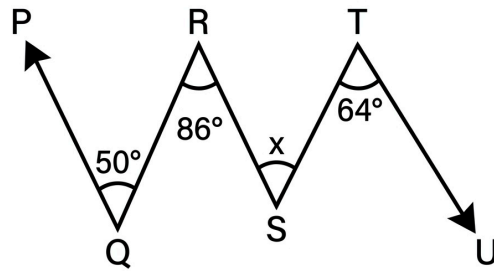
In the diagram below, $|AB| = 12$ cm, $|AE| = 8$ cm, $|DC| = 9$ cm and $BD \parallel DC$. Calculate the missing lengths.



In the diagram, $|AB| = 12$ cm, $|AE| = 8$ cm, $|DC| = 9$ cm, and the indicated lines are parallel. Find $|EC|$.

- A. 6 cm
- B. 5 cm
- C. 8 cm
- D. 9 cm

Question 38 (MCQ)



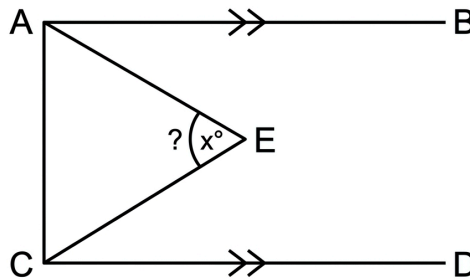
In the diagram above, PQ is parallel to TU , $\angle PQR = 50^\circ$, $\angle QRS = 86^\circ$ and $\angle STU = 64^\circ$. Calculate the value of x .

In the diagram, $PQ \parallel TU$, $\angle PQR = 50^\circ$, $\angle QRS = 86^\circ$, and $\angle STU = 64^\circ$. Find x .

- A. 100°
- B. 108°
- C. 120°
- D. 136°

Question 39 (MCQ)

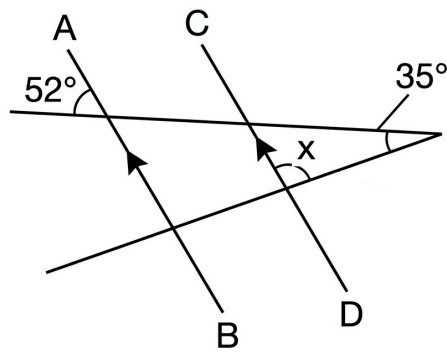
In the diagram below, $AB \parallel CD$, the bisector of $\angle BAC$ and $\angle ACD$ meet at E . Find the value of $\angle AEC$.



In the diagram, $AB \parallel DC$, and the bisectors of $\angle BAC$ and $\angle ACD$ meet at E . Find $\angle AEC$.

- A. 45°
- B. 60°
- C. 30°
- D. 90°

Question 40 (MCQ)



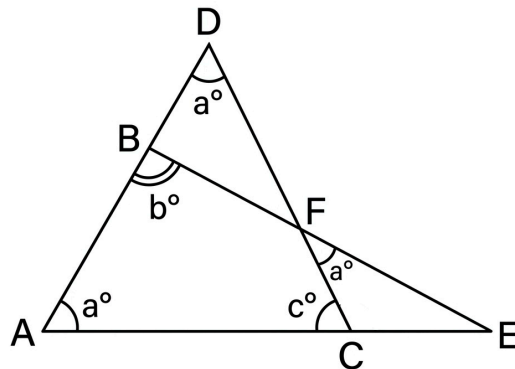
In the diagram above, $AB \parallel CD$. What is the size of the angle marked x ?

In the diagram, $AB \parallel CD$. What is the size of x ?

- A. 93°
- B. 77°
- C. 103°
- D. 62°

Question 41 (MCQ)

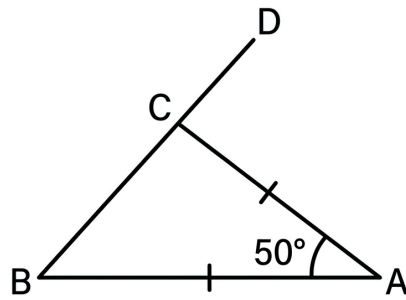
In the diagram below, the value of angles $b + c$ is?



In the diagram, find $b + c$.

- A. a°
- B. 90°
- C. 180°
- D. d°

Question 42 (MCQ)



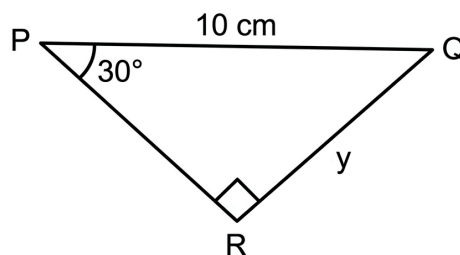
In $\triangle ABC$ above, BC is produced to D , $|AB| = |AC|$ and $\angle BAC = 50^\circ$. Find $\angle ACD$.

In $\triangle ABC$, side BC is produced to D . If $|AB| = |AC|$ and $\angle BAC = 50^\circ$, find $\angle ACD$.

- A. 115°
- B. 65°
- C. 60°
- D. 50°

Question 43 (MCQ)

In the diagram below, $\angle PRQ = 90^\circ$, $\angle QPR = 30^\circ$ and $|PQ| = 10$ cm. Find y .



In right triangle PQR , $\angle PRQ = 90^\circ$, $\angle QPR = 30^\circ$, and $|PQ| = 10$ cm. Find $|QR|$.

- A. 6 cm
- B. 4 cm
- C. 5 cm
- D. 3 cm

Question 44 (MCQ)

Find the mode of 8, 10, 9, 9, 10, 8, 11, 8, 10, 9, 8, 14.

- A. 8
 - B. 9
 - C. 10
 - D. 11
-

Question 45 (MCQ)

The bearings of Q and R from P are 030° and 120° . If $|PQ| = 12$ m and $|PR| = 5$ m, find $|QR|$.

- A. 11 m
 - B. 13 m
 - C. 9 m
 - D. 7 m
-

Question 46 (MCQ)

Without using tables, evaluate $\frac{\sin 20^\circ}{\cos 70^\circ} + \frac{\cos 25^\circ}{\sin 65^\circ}$.

- A. 2
 - B. 0
 - C. 1
 - D. -1
-

Question 47 (MCQ)

The mean of 20 observations is 4. If the largest observation is 23, find the mean of the remaining observations.

- A. 4
 - B. 2.60
 - C. 2.85
 - D. 3
-

Question 48 (MCQ)

Two fair dice are tossed once. Find the probability that the sum is at least 10.

- A. $\frac{1}{6}$
 - B. $\frac{1}{12}$
 - C. $\frac{1}{4}$
 - D. $\frac{5}{36}$
-

Question 49 (MCQ)

Find the median of 2.64, 2.50, 2.72, 2.91, 2.35.

- A. 2.50
 - B. 2.64
 - C. 2.91
 - D. 2.72
-

Question 50 (MCQ)

A box contains 2 red, 6 white, and 5 black balls. A ball is selected at random. What is the probability that it is black?

- A. $\frac{5}{13}$
 - B. $\frac{5}{11}$
 - C. $\frac{2}{13}$
 - D. $\frac{5}{6}$
-

Question 51 (FRQ)

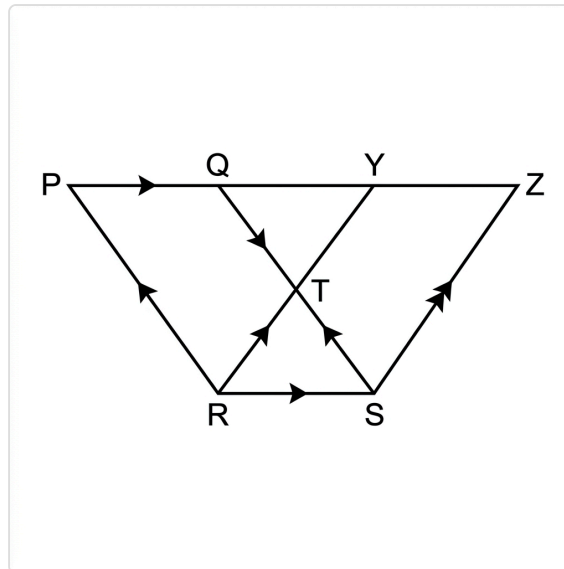
PART ONE. (a) Factorize $px - 2qx - 4qy + 2py$. (b) Given $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $P = \{1, 2, 4, 6, 10\}$, and $Q = \{2, 3, 6, 9\}$, show that $(P \cup Q)^1 = P^1 \cap Q^1$.

Show all necessary working.

Question 52 (FRQ)

(a) y is partly constant and partly varies inversely as the square of x . Write the relationship between x and y . (b) When $x = 1$, $y = 11$, and when $x = 2$, $y = 5$. Find y when $x = 4$.

Show all necessary working.

Question 53 (FRQ)

(a) In the diagram, $PQSR$ and $SRYZ$ are parallelograms, and $PQYZ$ is a straight line. If $|QY| = 2 \text{ cm}$ and $|RS| = 3 \text{ cm}$, find $|PZ|$. (b) Towns P and Q lie on latitude $56^\circ N$, with longitudes $25^\circ E$ and $95^\circ E$. Find PQ along the parallel of latitude, correct to the nearest km. Take $R = 6400 \text{ km}$ and $\pi = \frac{22}{7}$.

Show all necessary working.

Question 54 (FRQ)

(a) A pack of 52 cards is shuffled and one card is drawn. Find the probability that it is either a five or a red nine. (b) The bearing of Q from P is 150° , and the bearing of R from Q is 060° . If $|PQ| = 5 \text{ m}$ and $|QR| = 3 \text{ m}$, find the bearing of R from P , correct to the nearest degree.

Show all necessary working.

Question 55 (FRQ)

The table shows marks scored by 32 students. Marks: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. Frequencies: 2, 3, 4, 4, 4, 4, 5, 3, 2, 1. (a)(i) Find the mean. (ii) Find the median. (iii) Find the mode. (b) Find the percentage who scored at least 8 marks.

Show all necessary working.

Question 56 (FRQ)

PART TWO. (a)(i) Using mathematical tables, find $2 \sin 63.35^\circ$. (ii) Find $\log(\cos 44.74^\circ)$. (iii) Find k given that $\log k - \log(k - 2) = \log 5$. (b) Use logarithm tables to evaluate $\frac{3.68^2 \times 6.705}{\sqrt{0.3581}}$.

Show all necessary working.

Question 57 (FRQ)

(a) Given $p = x + ym^3$, find m in terms of p, x, y . (b) By completing the square, find the roots of $x^2 - 6x + 7 = 0$ to 1 decimal place. (c) The product of two consecutive positive odd numbers is 195. Form and solve a quadratic equation to find the numbers.

Show all necessary working.

Question 58 (FRQ)

(a) Complete the table for $y = 2 \cos 2x - 1$ for $x = 0^\circ, 30^\circ, 60^\circ, 90^\circ, 120^\circ, 150^\circ, 180^\circ$. (b) Draw the graph for $0^\circ \leq x \leq 180^\circ$. (c) On the same axes, draw $y = \frac{1}{180}(x - 360)$. (d) Use the graphs to find x for which $2 \cos 2x + \frac{1}{2} = 0$.

Show all necessary working.

Question 59 (FRQ)

(a) Using ruler and compasses only, construct $\triangle ABC$ with $|AB| = 7.5 \text{ cm}$, $|BC| = 8.1 \text{ cm}$, and $\angle ABC = 105^\circ$. (b) Locate D on BC such that $|BD| : |DC| = 3 : 2$. (c) Through D , construct a line perpendicular to BC . (d) If the line meets AC at P , measure $|BP|$.

Show all necessary working.

Question 60 (FRQ)

(a)(i) A man travels from X on bearing 060° to Y , 20 km away. From Y , he travels to Z on bearing 195° . If Z is directly east of X , find YZ to 3 s.f. (ii) Find ZX to 3 s.f. (b)(i) An aircraft flies due south from latitude $36^\circ N$ to $36^\circ S$ on the same longitude. Find the distance travelled to 3 s.f. (ii) If its speed is 800 km/h , find the time to the nearest hour. Take $\pi = \frac{22}{7}$, $R = 6400 \text{ km}$.

Show all necessary working.

Question 61 (FRQ)

The table shows scores of 2000 candidates. Percentage marks:

11 – 20, 21 – 30, 31 – 40, 41 – 50, 51 – 60, 61 – 70, 71 – 80, 81 – 90. Frequencies:

68, 184, 294, 402, 480, 310, 164, 98. Prepare a cumulative frequency table and draw the cumulative frequency curve.

Show all necessary working.
